

USSR

UDC 612.822.3

AGADZHANYAN, N. A., DVORZHAK, I., KALYUZHNYI, L. V., and
MORAVEK, M., Moscow

"EEG and Behavioral Changes at Different Levels of Hypoxia"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 1, 1971, pp
176-183

Abstract: Experiments with animals (rabbits) and human beings revealed a correlation between EEG shifts and behavioral disturbances, including impairment of conditioned reflexes, brought about by increasing hypoxia. Elevation of the animals to steadily higher simulated altitudes in a pressure chamber resulted in the gradual dominance of slow high-amplitude waves on the EEG, the disappearance of conditioned reflexes, adynamia, and unconsciousness. In the early stage of the experiment with the human subjects, the alpha oscillations were dominant, the beta and theta oscillations insignificant, and the delta rhythms entirely absent. With increasing hypoxia, the alpha oscillations

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AGADZHANYAN, N. A., et al.; Zhurnal Vysshey Nervnoy Deyatel'nosti,
No 1, 1971, pp 176-183

gradually decreased, the beta oscillations disappeared, and the delta rhythms became dominant. Mental performance (in arithmetic problems) deteriorated, memory declined, and when oxygen saturation of the blood was 65% or less unconsciousness ensued, although several vital systems (respiratory, cardiac) continued to function. The results of the experiments suggest that EEG shifts can serve as an indicator of mental impairment under conditions of increasing oxygen insufficiency.

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AGADZHANYAN, N. A., et al., Zhurnal Vysshey Nervnoy Deyatel'nosti, No 1, 1971, pp 176-183

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USSR

UDC 621.791.72:535.14

VELICHKO, A. A., GARASHCHUK, V. P., and MORAVSKIY, V. E.

"Characteristics of Impulse Laser Welding Joints With Root Openings"

Kiev, Avtomaticheskaya svarka, No 4, Apr 72, pp 75-76

Abstract: A feasibility study was conducted at the Electric Welding Institute imeni Ye. O. Paton on impulse laser welding of lap joints with root openings. The latter's dimensions were varied by special spacer linings of specific thickness with slits. The complete conformity of the openings to the spacers was verified by metallographic examination. Experimental tests indicate that the dependence of the weld point's tensile strength on the opening decreases with the shape factor of penetration. The dependence of the lap weld strength on the root opening dimensions is also governed by the properties of both the crystallized weld pool and the base metal. Hence, the tensile strength and plasticity of the cast nugget metal that had formed in the root opening govern the weld point strength while both the fluidity and the surface tension factor of the melt largely determine the capacity of the metals (being welded) to form here a fairly large fusion zone. (2 illustrations, 1 bibliographic reference)

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USSR

UDC 621.791.72:535.14

VELICHKO, O. A., GARASHCHUK, V. P., and V. E. MORAVSKIY

"Laser Butt Welding of Dissimilar Metals"

Kiev, Avtomaticheskaya svarka, No 3, Mar 72, pp 71-73

Abstract: The Electric Welding Institute imeni Ye. O. Paton conducted studies on the application of solid-state lasers for welding most commonly used metals. The specimens were butt-welded under pulsed conditions with weld spot overlaps. The overlapping factor ranged from 50 to 75%, depending on the physical properties of the metals. Optimum conditions were selected to ensure maximum strength, appearance, and quality of the welds. Metallographic examinations of welds on similar and dissimilar refractory metals indicate extensive structural inhomogeneity and uneven microhardness as well as longitudinal cracks along the grain boundaries. There were occasional specimen failures (under residual stress) attributed to greater concentrations of interstitial impurities at the grain boundaries. The technique of moving the heat spot from the welding line towards one of the metals being welded provides optimum weld geometry. Data on the mechanical properties of laser-welded dissimilar metals are cited. (2 illustrations, 1 table)

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UDC 621.791.72:535.14

VELICHKO, O. A., GARASHCHUK, V. P., MORAVSKIY, V. E., Ye. O. Paton Electric Welding Institute

"Use of Pulsed Laser Welding for Mounting of Integral Solid Circuits Onto Printed Plates"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 1972, pp 50-51

Abstract: This work describes a study seeking methods and optimal modes for welding of the leads of integral solid circuits to the current-carrying lines on printed circuit plates using pulsed laser radiation. The strength of the welded joints produced was studied as a function of output energy, pulse length and focal length of the focusing lens. At low radiation energies (0.7-1 j), the leads do not melt and the contact is formed by soldering, with the layer of gold on the leads serving as solder. At moderate energies (1.2-1.6 j), the contact is formed by melting of the lead and printed circuit current-carrying material. Further increases in energy are counter-productive. Pulse length influences strength of the welded joint and other quality factors: welded joint quality stability increases with increasing pulse length up to 6 msec, the optimal length. The optimal focal length of the focusing lens was found to be 50 mm.

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AA0040742

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

241876 ELECTROCHEMICAL CONTOUR MACHINING is carried out in chamber 1 containing workpiece 2, and tool-electrodes 3. Dielectric screen 4 in the gap between the workpiece and the electrode is suspended by elastic element 5, the interelectrode space filled with electrolyte 6. During the machining, the electrodes are vibrated with an amplitude ensuring a soft contact with the workpiece across the dielectric grid 4 with electrolyte trapped in its meshes. This results in anodic dissolution of the machined surface, followed by electrode withdrawal and intensive electrolyte regeneration in the gap.

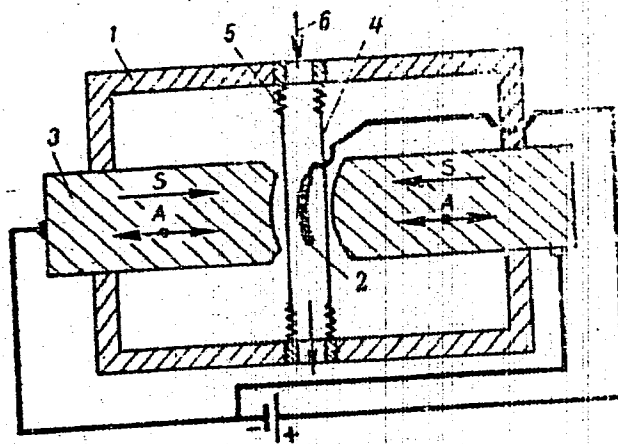
7.2.68 as 1217763/25-8. A.K. SVINOV et alia(3.9.69)
Bul 14/18.4.69. Class 48a. Int.Cl.C 23b.

18

AUTHORS: Svinov, A. K.; Agrest, Ye. A.; Mordekhay, V. M.;
Shirokikh, V. G.; and Verpukhovskiy, A. G.

13750412

AA0040742



19750413

USSR

TARAKHANOV, D. F., KOBZINIDZE, M. G., MORDEL, G. I., et al.

"Rodenticidal Composition"

USSR Author's Certificate No 363474, filed 23 Jun 71, published 24 Jan 73
(from RZh-Khimiya, No 21, Nov 73, Abstract No 21N531P)

Translation: The following are added to the rodenticide in order to increase its effectiveness by stabilizing the foam: stearine as the structure forming agent, glycerine as a foam stabilizer, and a propellant. Example.
Rodenticidal preparation contains (in %): technical phentolacin 0.2-3.0, triethanolamine 1-10, sp 0.1-3, glycerine 10-30 stearine 1.5-5, freon 12.5-25, water up to 100.

AA0040672

m

UR 0482

1-90

Soviet Inventions Illustrated, Section I Chemical, Derwent,

241875 FINE ELECTROCHEMICAL MACHINING of round parts
features a dielectric grid placed at the
working surface of the electrode, which revolves
due to frictional contact with the component. The
grid may be made of hard rubber or other synthetic
material, and the electrolyte is pumped into the
interelectrode gap. The constant contact of
electrodes with the workpiece may be ensured by a
counterweight, spring or other means.
5.2.68 as 1216953/25-8. V.G. SHIROKIKH et alia.
(27.8.69) Bul 14/18.4.69. Class 48a. Int.Cl.C 23b.

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AUTHORS: Shirokikh, V. G.; Mordekhay, V. M.; Verpukhovskiy, A. G.;
and Agrest, Ye. A.

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19750272

USSR

UDC: 621.315.592

KOVAL', Yu. P., MORDKOVICH, V. N., TEMPER, E. M., and KHARCHENKO, V. A.

"Optical Characteristics of Silicon Irradiated With Neutrons"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1317-1322

Abstract: This paper considers infrared absorption by silicon irradiation and consequent isochronal annealing. The silicon was n-type, with a resistivity of 200 ohm-cm and an oxygen concentration of $3-4 \cdot 10^{17}/\text{cc}$. Part of the crystals were bombarded with neutrons without special cooling, with a temperature of 250°C , the other part being bombarded while in water. The annealing was done in a range of $100-800^\circ \text{C}$, in steps of 50° , for 30 minutes at each step. For the specimens irradiated in water, at a temperature of less than 60°C , very strong absorption of infrared rays of $2-4 \mu$ wavelength was observed. High absorption of $17-25 \mu$ wavelengths was also seen in these specimens. The silicon crystals irradiated at 250°C , on the other hand, were transparent to the $2-4 \mu$ as well as the $17-25 \mu$ wavelengths. Curves are plotted for the absorption of the crystals as functions of the wavelength and the annealing

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KOVAL', Yu. P., et al, Fizika i tekhnika poluprovodnikov, No 7,
1972, pp 1317-1322

temperature. Differences in absorption displayed by crystals of
different growth methods are also discussed. The authors express
their gratitude to V. G. Goryachev and S. P. Solov'yeva for their
interest in the work and their comments on the results.

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MORDKOVICH, V. N.

UDC 621.382

"Effect of Irradiation on the Electrical Properties of a Dielectric--
Semiconductor Structure"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronics
Technology. Scientific-Technical Collection. Semiconductor Devices), 1970,
Issue 6(56), pp 45-46 (from RZh--Elektronika i yeye primeneniye, No 10,
October 1971, Abstract No 10B558)

Translation: Literature and experimental data are systematized concerning
the dependence of the parameters of the interface Si--SiO₂ on the methods
of producing the dielectric, radiations effects and their type, and also
data on the nature and stability of radiation defects. It is found experi-
mentally that a change of the charge at the Si--SiO₂ boundary under the
influence of bombardment by protons of small energy ($E \leq 50$ kev) depends
on the methods of oxide growth. A negative charge, whose magnitude grows
with an increase of the dose of protons, is established in oxides produced
by thermal means grown by high-temperature pyrolysis of SiCl₄ in the
presence of CO₂. It is shown that it is impossible to explain the processes
at the interface merely by generation of electron-hole pairs and capture of
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MORDKOVICH, V. N., Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 6(56), pp 45-46

holes at traps. An overall model accounting for radiation changes must take into account not only ionization phenomena and charge exchange of defects present in the initial oxides, but also the formation of structural rearrangements in the dielectric layer. Change of the rate of the surface recombination S is proportional to the quantity of defects in the layers of silicon near the surface. With an increase of the irradiation doses, S increases to saturation. It is confirmed by tests of annealing of radiation defects that it is necessary to distinguish between defects in SiO_2 and defects near the surface of Si and that the method of oxide growth has an effect on the interface. 8 ill. 18 ref. I. M.

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UDC 621.382:621.317.799

MORDKOVICH, V.N., ZHUKOVA, G.A.

"Determination Of Path Of Low Energy Ions"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. prihory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 2(52), pp 71-76 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B464)

Translation: A method is proposed for determining the path of low-energy particles (e.g., protons with an energy ~ 50 kev) in dielectric and conducting films. The method uses the change of the rate of surface recombination of minority charge carriers in a semiconductor or the charge of the dielectric-semiconductor interface. In their turn the latter parameters are found from the voltfarad characteristics of the MOS structure. Experimental data are presented on determination of the path of protons in SiO_2 films. 9 ref. V.K.

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USSR

MORDKOVICH, YA. B.

UDC 632(048)

"Pesticides -- For and Against"

Moscow, Zashchita Rasteniy, No 1, 1970, pp 62-63

Abstract: What does the ever-increasing application of chemistry to daily life bring to man -- good or harm? And, in particular, what does the use of pesticides in ever-growing amounts in orchards and in the fields?

This problem has become an everyday concern since the time when biologists, chemists and hygiene workers explained that poisonous chemicals used to combat pests and plant diseases could have an undesirable effect on useful fauna which protected crops, on the environment as a whole, and even on man. This problem has gone beyond the narrow framework of special meetings and publications. Increasingly frequently, articles with a particular point of view attracting the readers' attention to pesticides have appeared in mass-circulation publications, in newspapers and magazines. These

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MORDKOVICH, YA. B., Moscow, Zashchita Rasteniy, No 1, 1970, pp 62-63
positions are quite often diametrically opposed. Some authors describe cases of mass poisonings of animals, birds and fish, the accumulation in foodstuffs of dangerous residues of poisons, contamination of the soil and water; and others are quite optimistic, certain of the harmlessness of many pesticides, due to their decomposition and metabolism, and consider chemistry the only lever for developing farming and increasing the food resources on earth.

Proponents of the first point of view include the journalist Yu. Medvedev, the author of a book, Bezmolvnyy Front (The Silent Front), published in 1969 by the Sovetskaya Rossiya Publishing House. The book contains an enormous number of examples, figures and references to foreign publications, presented in an interesting manner. The work is not overly academic, and even uses quotations from fiction.

The information adduced by Yu. Medvedev depicts the death of fish and birds on a California lake, where chemicals are used to combat swarms of midges, describes the destruction of useful soil
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MORDKOVICH, YA. B., Moscow, Zashchita Rasteniy, No 1, 1970, pp 62- 63

fauna in the course of combatting the fire ant, and recounts the rapid multiplication of mites and ticks after the use of poisonous chemicals...

However, in attempting to objectively describe the damage done to nature by pesticides, Yu. Medvedev fails to take into consideration a number of factors. He consciously or unconsciously ends up refuting chemical means of combatting plant pests and diseases. At the same time, the majority of cases of tragic violation of the ecological balance have occurred and will occur due to the unskilled, irresponsible use of pesticides. The struggle against this evil requires, first of all, the solution of a legal question -- who has the right to use pesticides? This question, unfortunately, has not been answered either in our country, or in a majority of the other states.

Before a person is permitted to operate a tractor or a motor vehicle, he is instructed in driving skills, because this work not only requires habits and knowledge, but also involves a certain

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risk for the operator and for those around him. But are not pesticides analogous to mechanisms and machinery? At the same time, on a number of farms, it has not yet become obligatory to give the post of chemical expert only to carefully instructed workers with a special permit.

Of course, every instance of the negative effect of pesticides on plants and animals cannot be reduced to the costs of their unskilled application. For example, with the careful observance of all the recommendations, DDT still accumulated, due to its persistence in the soil, in produce, in the bodies of animals, and even in the fatty tissues of people. Yu. Medvedev writes a great deal about this, but does not mention the fact that DDT and other cumulative organochlorine insecticides are today being superseded by the organophosphorous insecticides and carbamates in many countries.

Moving up as DDT replacements are such new substances as fazalon, phthalophos, and cydial, which are highly effective and which are considerably less persistent. Chlorophos (Dipteres) and carbophos (Malathion) have the advantage of rapidly decomposing in comparison

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MORDKOVICH, YA. B., Moscow, Zashchita Rasteniy, No 1, 1970, pp 62-63 with DDT.

DDT will pass from the scene in the world's practical use of pesticides. Holland and Denmark have decided to stop the use of DDT entirely, the French and British have established rigid control over this pesticide, and the US has, during the past five years, reduced its production of DDT by 30% and its use of DDT even more.

Here, with a view towards safety in using chemical methods, we have adopted a resolution not to use a number of the most persistent chemical preparations -- the chlorine-containing insecticides of diene synthesis, thiophos, and methylethylthiophos. The use of DDT and preparations based on commercial hexachlorane for treating food and forage crops must be stopped in the near future. As Professor K. A. Gar notes, the transition to the issue of a pure gamma-isomer or preparations with a different degree of it, will permit nearly a 100-fold reduction in soil and plant contamination with organochlorine compounds.

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Many of these measures have been adopted on the initiative of the sanitation and hygiene service of the USSR. It is therefore strange to hear Medvedev saying: "No, no, the doctors in hygiene do not see the main thing in the quarrel between chemists and practical agricultural workers. They are more likely scared by the rights granted them to permit and forbid."

The hygienic requirement for the use of pesticides in the USSR are stricter than in other countries. In particular, the limiting permissible norms of pesticide residues in foodstuffs in laws of the Soviet Union are significantly below those in the US, England and the Federal Republic of Germany.

Another matter which needs attention is practical control over the content of pesticides in foodstuffs and forage. Two years ago, Meditsinskaya Gazeta asked about the necessity of creating departmental toxicological laboratories of the USSR Ministry of Agriculture. The leaders of a number of ministry administrations, and responsible workers locally, were in agreement with this, but

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these laboratories have not yet appeared, and only the sanitation and epidemiological stations are checking residual amounts of pesticides (inadequately).

As long as new chemical means of plant protection, which are possibly more effective, but less persistent and more easily decomposed, have not been developed and introduced into production, strict hygienic control over the use of pesticides is necessary, especially since the use of pesticides is expanding. Whereas 25 million hectares were treated with chemicals in the USSR in 1956, the figure was 80 million hectares in 1968. And, as we know, these figures will grow, because the effective protection of plants from many pests and diseases cannot now be ensured without using chemical means of plant protection.

In the USSR, according to Professor I. Ya. Polyakov, expenditures for plant protection amount to 500 million rubles annually. This amount protects 4.5 billion rubles worth of agricultural output from destruction. It is estimated that, if expenditures for

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MORDKOVICH, YA. B., Moscow, Zashchita Tasteniy, No 1, 1970, pp 62-63

plant protection were increased to 1.2 billion rubles now, it would be possible to save 7-8 billion rubles worth of output annually.

The authors of the polemics are undoubtedly right, as Yu. Medvedev, the author of the book "Bezmolvnyy Front" is correct: the ever-increasing scale of the use of pesticides involves the possibility that their undesired effect on the environment will be intensified. But we must counter this fact not with a panic-stricken fear of chemistry, but with the ability to use its gifts to obtain the maximum benefit without damaging the interests of mankind.

Increase in the use of pesticides in the immediate future is inescapable, and our agriculture cannot yet begin reducing its use of pesticides it is willing to suffer enormous harvest losses.

The natural way is the path of skillfully combining various types of plant protection, with strict control, high standards and the proper organization of the chemical method of combatting plant pests and diseases.

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UDC 632.954

MORDOVETS A. A., NAZARENKO, G. I., Ukrainian Station of the
Scientific Research Institute for Smartweed Control

"Effectiveness of Tordon 101 in Controlling Russian Sweet Sultan"
Moscow, Khimiya v sel'skom khozyaystve, Vol 9, No 8, 1971,
pp 40-41

Abstract: Owing to its powerful root system going down to 12 m deep and its relatively short surface portion, Russian sweet sultan (*Aroptilan repens*) readily adapts itself to arid conditions. For viability it ranks first among the weeds. The objective of the study is the effectiveness of the herbicide Tordon 101 against Russian sweet sultan. The dosage was 0.1 to 7.2 kg act. ingredient/ha. The herbicide was applied by spraying winter wheat at the beginning of the heading stage. The weed was in its budding stage. The spraying was done in the morning hours. The herbicide solution was used at 800 l/ha. The treatment results show the optimum doses of Tordon 101 to range from 1.2-2.4 kg/ha. Variations of the doses yielded farm crop increments from 25 to 124 percent and almost complete suppression of the weed for three years. It was

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MORDOVETS, A. A., et al, Khimiya v sel'skom khozyaystve,
Vol 9, No 8, 1971, pp 40-41

found that corn, Sudan grass and millet are resistant to Tordon when applied in optimal doses at different times. It is suggested that winter wheat be planted three years after Tordon treatments in optimal doses. A table shows Tordon treatment results covering a period of three years.

2/2

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1/2 021 UNCLASSIFIED PROCESSING DATE--040EC70
TITLE--SYSTEM TA SUB2 0 SUB5 GD SUB2 0 SUB3 -U-
AUTHOR-(02)-TIMOFEYEVA, N.I., MORDOVIN, O.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM.: 15: 865-7, MAR 1970
DATE PUBLISHED----MAR70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL STABILITY, MICROHARDNESS, THERMAL EFFECT, GADOLINIUM,
TANTALUM, METAL OXIDE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO-----FD70/605019/B04 STEP NO--UR/007B/70/015/000/0865/0867
CIRC ACCESSION NO--AP0140895

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140895

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FUSIBILITY DIAGRAM OF THE SYSTEM GD SUB2 O SUB3-TA SUB2 O SUB5 WAS STUDIED AND THE PRESENCE OF THREE CONGRUENTLY MELTING COMPOUNDS ESTABLISHED. GDTA SUB3 O SUB9 (T SUBMP EQUALS 1840DEGREESC), GDTAO SUB4 (T SUBMP EQUALS 2050DEGREESC), AND GD SUB3 TAO SUB4 (T SUBMP EQUALS 2280DEGREESC). THE COMPOSITION, DENSITY, MICROHARDNESS, AND THE CHEMICAL STABILITY OF THESE COMPOUNDS WERE DETERMINED.

UNCLASSIFIED

1/2 C17 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--TANTALUM PENTOXIDE, GADOLINIUM SESQUIOXIDE SYTEM -U-
AUTHOR-(02)-TIMOFEYEVA, N.I., MURDOVIN, O.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 865-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHASE DIAGRAM, THERMAL STABILITY, TANTALUM COMPOUND,
GADOLINIUM COMPOUND, METAL OXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1725 STEP NO--UR/0076/70/D15/C03/0865/0867
CIRC ACCESSION NO--AP0115554
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115554

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE DIAGRAM OF THE GD SUB2 O SUB3-TA SUB2 O SUB5 SYSTEM IS CONSTRUCTED. THE SYSTEM FORMS 3 CONGRUENTLY MELTING COMPS., GOTTA SUB3 O SUB9, GOTAO SUB4, AND GD SUB3 TAO SUB7, M. 1840, 2050, AND 2280DEGREES, RESP. THESE COMPS. ARE INSOL. IN BOILING WATER AND DO NOT DECOMP. IN CONCD. HCL, HNO SUB3, H SUB3 PO SUB4, H SUB2 SO SUB4 OR NAOH.

UNCLASSIFIED

USSR

UDC 546.623'171.1-162.2

TIMOFEYEVA, N. I., MORDOVIN, O. A., GRIEKOV, V. N., and SAKOVICH, V. N.

"Chemical Properties of Thread-Like Crystals in Aluminum Nitride"

Moscow, Zhurnal Prikladnoy Khimii, Vol 45, No 8, Aug 72, pp 1858-1860

Abstract: The thread-like crystals of AlN were obtained by partial reduction of aluminum oxide with carbon and silicon followed by nitridation of the intermediate reduction products. The crystals of aluminum nitride are highly stable at room temperature in acids, bases, in water, and in organic solvents. On heating they dissolve in phosphoric acid, in KOH and in Na_2CO_3 solutions, as well as in mixtures consisting of $\text{H}_3\text{PO}_3 + \text{HClO}_4$ (1:1) and $\text{H}_2\text{SO}_4 + \text{H}_3\text{PO}_4$ (1:1).

USSR

UDC 621.039.524.2.034.3

LOMAKIN, S. S., MORDOVSKAYA, T. S., PANFILOV, G. G., PETROV, V. I., SAMOYLOV, P. S., and KHYZOV, V. V.

"Measuring the Effective Neutron Temperature in Uranium-Graphite Reactors"

Moscow, Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 36-37

Translation: A brief description is given for the technique used in measuring the effective neutron temperature in uranium-graphite reactors. The effective neutron temperature was measured by the integral method in the F-1 graphite research reactor using natural uranium and in the Pervaya (first) Atomic Electric Power Plant reactor in Obninsk. Ceramic activation detectors made of lutecium and manganese in the form of tablets 8 mm in diameter were used. The Westcott formalism modified for the case of detectors of finite thickness was used to process the results. The detectors were calibrated in a graphite prism with a thermal neutron spectrum. The activity of the detectors was measured on a scintillation γ -counter with a NaI (TI) crystal and a PP-9 scaler which has an integral discriminator by means of which the corresponding thresholds were established. The measured saturation activities of the detectors, the cadmium
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LOMAKIN, S. S., et al., Atomnaya Energoya, Vol 29, No 1, Jul 70, pp 36-37

ratio, and the calibration factor were used to determine the neutron temperature. The measurements in the F-1 reactor were taken in the center of the core. The neutron temperature T_{neutron} averaged with respect to four measurements with different pairs of lutecium-manganeses detectors was $348 \pm 100\text{K}$.

The measurements at the Pervaya Atomic Electric Power Plant were taken in an empty process tube; T_{neutron} was $393 \pm 120\text{K}$. On the basis of the experimental data obtained and the published experimental data on T_{neutron} for uranium-graphite systems, the empirical relation between the neutron temperature T_{neutron} and the temperature of the medium T_0 was refined:

$$T_{\text{neutron}} = T_0 \left(1 + A \frac{E_a(kT_0)}{E_s} \right),$$

where $A = 16.5$. The calculated value of A according to R. Covecou for uranium-graphite systems is 11.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--LOCASALEN IN THERAPY OF PSORIASIS -U-
AUTHOR--MORDOVITSEV, V.N. M
COUNTRY OF INFO--USSR
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 4, PP 76-77
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SKIN DISEASE, PROPHYLAXIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0934 STEP NO--UR/0206/70/000/004/0076/0077
CIRC ACCESSION NO--AP0109091
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0109091
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LOCASALEN (LOCACORTEN WITH
3PERCENT SALICYLIC ACID) WAS USED FOR TREATMENT OF 25 PATIENTS WITH
PSORIASIS. THE BEST EFFECT WAS ACHIEVED BY APPLICATION OF THE OINTMENT
TO FOCI LESION OF SHORT DURATION, PARTICULARLY TO THOSE ON THE FACE.
THE OINTMENT WAS WELL TOLERATED. FACILTIY: OTDEL DERMATOLOGII
TSENTRAL'NOGO KOZHNO VENEROLOGICHESKOGO INSTITUTA MINISTERSTVA
ZDRAVOOKHRANENIYA SSSR, MOSCOW.

UNCLASSIFIED

Hydrobiology

USSR

UDC 591.524.12(26)

MORDUKHAY-BOLTOVSKOY, E. D., Institute of the Biology of Inland Waters,
Academy of Sciences USSR, Borok

"Current Status of the Aral Sea Fauna"

Kiev, Gidrobiologicheskii Zhurnal, No 3, 1972, pp 14-20

Abstract: The large-scale introduction of new fish and invertebrate species into the Aral Sea started in 1954 together with the entry of "unplanned" species, many of which adapted more successfully than did the planned ones, has brought about significant changes in the fauna. The changes resulted from the mass multiplication of some of the acclimatized species and installation of irrigation works on the Syr-Dar'ya and Amu-Dar'ya at the same time. The irrigation works reduced the flow of the two rivers and lowered the level of the Aral Sea while increasing its salinity. The most striking changes observed in the zooplankton during a cruise on the lake in September 1971 were the universal dominance of the copepod *Calanipeda aquae-dulcis* which had been introduced in 1965, and scarcity of diaptomids, daphnids, and bivalve mollusk larvae. The benthos was extremely meager in species composition, abundance, and biomass and previously dominant aboriginal forms, e. g., chironomid larvae, pontogammarids, and dreissenas, had virtually disappeared. On the

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USSR

MORDUKHAY-BOLTOVSKOY, F. D., Gidrobiologicheskii Zhurnal, No 3, 1972, pp 14-20

other hand, the recent Settler Nereis diversicolor was widely distributed. The phytoplankton, always meager, was virtually nonexistent. Aral is a starving lake and further "reconstruction of the fauna" will not improve the situation. Life can be preserved only by restoring the former flow of the Syr-Dar'ya and Amu-Dar'ya rivers and raising the lake's level as a result.

2/2

- 16 -

USSR

UDC: 517.2

MORDUKHOVICH, B. SH.

"Qualitative Interrelationships of the Functions f and θ in the Lagrange Theorem"

Vestn. Belorussk. Un-ta [Herald of Belorussian University], Series 1, No. 1, 1970, pp 91-92, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B14, by the author).

Translation: Suppose $f(x + h) = f(x) + h \cdot f'[x + h\theta(x, h)]$, $0 < \theta < 1$. It is proven that in order for a certain unambiguous branch of the θ -function to be continuous with respect to each variable, it is necessary and sufficient that f' be strictly monotonic or constant. It is proven that if the θ -function is unambiguous, it is necessarily continuous with respect to the set of variables.

USSR

UDC 621.316.543.26.017.42

M
NORDUKHOVICH, N. G., KHARACH, G. M., EFROS, D. G.

"Optimizing Contact Mechanisms in Switches"

Moscow, Radiotekhnika, Vol 25, No 9, 1970, pp 81-87

Abstract: Breakdowns in high-frequency switching devices are usually caused by erratic behavior of the switch contact points. The transfer resistance of the contact points is the most important characteristic determining resistance to wear and long life of the switch containing them; the lower is the transfer resistance, the more remote the likelihood of breakdown. Reduced and stable transfer resistances are difficult to achieve in high-frequency switching devices; in standard switches, sliding contacts suffering from increased wear due to surface friction are usually employed. Such measures as using wear-resistant materials for the contact surfaces or covering them with noble metals cannot guarantee stability and low transfer resistance, and new construction methods reducing friction and wear of the contacts must be utilized. The article discusses various construction systems and analyzes them mathematically. A quantitative description of rolling contact mechanisms is derived, and it is found that such contacts provide minimal wear. Also given is an analytical method for choosing materials and developing switch construction with optimal friction coefficients taken into account.

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USSR

UDC 615.849.1.015.25.034.61

GOLUBENTSEV, D. A., MERKINA, T. N., MORDUKHOVICH, V. V., and TITOV, A. V.

"The Effect of Ionizing Radiation on the Excretion of Radioprotectors in Rats' Urine"

Moscow, Farmakologiya i Toksikologiya, Vol 35, No 5, Sep-Oct 70, pp 607-610

Abstract: Administration of sulfur containing radioprotectors such as β -mercaptoethylamine (MEA), cystamine, or cystophos in optimal doses to non-irradiated rats produces a sharp rise of non-protein thiols in the urine due to excretion of MEA. When cystamine is administered, the amount of MEA excreted in urine is twice as low as when MEA itself is used. Administration of sulfur containing protectors in combination with serotonin lowers considerably the excretion of non-protein thiols in urine. A whole body irradiation of rats at a dose of 700 r (LD 100/30) 5-10 min after administration of the radioprotector results in a drastic drop of the excretion of MEA. This indicates a change in metabolism due to the effect of radiation.

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172 011 UNCLASSIFIED
TITLE--METHOD OF CHROMATOGRAPHIC DETERMINATION OF BETA MERCAPTOETHYLAMINE
(MEA) IN BLOOD AND TISSUES -U- PROCESSING DATE--23OCT70
AUTHOR-(03)-TITOV, A.V., MORDUKHOVICH, V.V., LERNER, O.M.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 329-333
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MERCAPTAN, AMINE DERIVATIVE, CHROMATOGRAPHIC ANALYSIS, THIOL,
CYSTAMINE, CHEMICAL LABELLING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0156 STEP NO--UR/0301/70/016/003/0329/0333
CIRC ACCESSION NO--AP0120856
UNCLASSIFIED

272 011
CIRC ACCESSION NO--AP0120856
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. THE PROPOSED METHOD IS BASED UPON
BLOCKADE OF SH GROUPS OF MEA AND OTHER THIOL COMPOUNDS BY MEANS OF
EXCESS OF N-(4,THYDROXY,L,NAPHTYL), ISOMALEIMIDE (NMI). COMPLEXES
MEA-NMI WERE SEPARATED FROM OTHER THIOL COMPOUNDS AND EXCESS OF REAGENT
BY MEANS OF PAPER CHROMATOGRAPHY. THE COMPLEXES OF THIOLS AND NMI ON
THE PAPER WERE LOCATED BY MEANS OF 5,NITRO,O,ANIZIDINE. THE METHOD IS
SUITABLE FOR MEA IDENTIFICATION IN SOLUTIONS AND PROTEIN FREE EXTRACTS
OF AMINAL TISSUES AFTER CYSTAMINE ADMINISTRATIONS. THE SENSITIVITY OF
THE METHOD IS 0.005 MU MOLES OF THIOL. USING THE LABELLED CYSTAMINE IT
IS POSSIBLE TO CHARACTERIZE QUANTITATIVELY THE CONTENT OF MEA AND ITS
DECOMPOSITION PRODUCTS IN TISSUES.
MILITARY MEDICAL ACADEMY, LENINGRAD. FACILITY: S. M. KIRDV

UNCLASSIFIED

USSR

UDC 621.313.333.001.5

IGNATOV, V. A., Candidate of Technical Sciences, POLYAK, L. M., Engineer,
MORDVINOV, V. A., Engineer

"Study of Asynchronous Motors with Printed Coaxial Windings"

Moscow, Elektrotehnika, No 8, 1971, pp 13-20

Abstract: A study was made of asynchronous motors with printed windings forming several coaxial stacks working on a common shaft. The theory of a generalized electric motor is used to derive the basic equations of the voltages and total moment [B. Adkins, Obshchaya Teoriya Elektricheskikh Mashin, Gosenergoizdat Press, 1960]. This theory is convenient in that use of matrices makes it possible to derive the voltage and moment equations both for each unit motor for each pair of windings and the motor as a whole. The equations are derived for the case where the winding material of the rotor and the configuration of the winding conductors are identical for each of the k pairs of windings. Corresponding coefficients must be introduced if the specific resistance or conductor geometry of any part of the rotor windings is changed.

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USSR

MORDVINOV, V.

"How to Put a Gas Mask on a Victim"

Moscow, Sovetskiy Krasnyy Krest, No 10, Oct 70, p 22

Abstract: Toxic agents (war gases) are most readily resorbed through the lungs. Regardless of the nature of the toxic agent used by the enemy, the most urgent task is to put a gas mask on oneself and on anyone affected by the agent. A damaged mask should be replaced with one in good order, so that the skin of the face and the eyes are also protected. Before putting on the gas mask, one should hold one's breath and remove headgear. The temple and occipital tapes are held with both hands in such a manner that the thumbs are pointed inwards. The lower part of the mask is then placed on the chin and the mask pulled over the face. The occipital tapes are drawn behind the ears in such a manner that the occipital pad is in the center. Finally, the tapes are tightened by pulling their free ends. For the helmet type of mask, the thickened edges are held with both hands, with the thumbs outside and the fingers inside. The lower part of the mask is placed under the chin and the mask pulled over the head by a brisk motion upward and backward. After smoothing out the folds, one may resume breathing and open his eyes. To put a gas mask on a person affected by the gas, one kneels on one knee and

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USSR

MORDVINOV, V., Sovetskiy Krasnyy Krest, No 10, Oct 70, p 22

places the head of the victim on the other knee. Headgear is removed. The temple and occipital tapes are grasped and the mask is held at the edges with both hands in such a manner that the thumbs are outside the mask and the fingers inside. The mask is then pulled over the face after applying it to the chin). The occipital tapes are then drawn behind the ears and tightened. In the case of a woman, the hair or a kerchief may prevent tight fitting of the mask on the face. To check for tightness, one compresses the corrugated tube of the GP-4u gas mask or closes the inlet of the GP-5 gas mask and inhales. If the mask is tight, no outside air gets into the space under it. In a contaminated area, one must not adjust or move the mask, because contaminated air may get under it and into the body. The process of putting a mask on another person who is in a reclining position is illustrated by figures.

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USSR

UDC 597:591.17

MORDVINOV, Yu. Ya., recommended by the Institute of the Biology of Southern Seas, Academy of Sciences Ukrainian SSR

"Dorsoventral Asymmetry of the Body of Seals (Family Phocidae) and Methods of Eliminating the Corpus Momentum During Swimming"

Moscow, Biologicheskiiye Nauki, No 11 (107), 1972, pp 24-26

Abstract: The body of seals inhabiting the White Sea and the Caspian Sea is asymmetrical in the dorsofrontal direction inasmuch as the dorsal portion of the body is more convex than the ventral. During swimming, this asymmetry creates an uplift of the caudal portion of the body, tending to lower the head and to swerve the translocation from horizontal to downward. In order to counteract this corporal momentum, the animals sometimes perform treading movements with the front fins or lift the head and spread the front fins under an angle so as to keep the whole body inclined up cranially. However, this involves additional energy expenditure and slows the speed of swimming. Therefore, most often, they flap the hind fins under an angle which allows them to scoop the water up and keep the tail down. The special form of the hind fins is especially suited for this purpose.

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Epidemiology

USSR

UDC 616.981.25-036.22(99)

PETROSOV, V. V., and MORDVINOVA, N. B., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, and Moscow Scientific Research Institute of Epidemiology and Microbiology, Ministry of Health USSR

"Distribution of Staphylococcus Infection in an Isolated Collective of Polar Explorers in the Antarctic"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1973, pp 94-98

Abstract: Staphylococcal infection was observed May 1968 to February 1969 among 16 individuals in a Soviet Antarctic expedition to Novolazerevskaya Station in order to define the behavior of bacteria, normally residing in the human upper respiratory tract, under isolated conditions. For unknown reasons pathogenic Staphylococci were never detected among four individuals throughout the observation period. Among the remaining 12, 3 were permanent carriers and 9 were intermittent carriers. The same phagotype was isolated from the upper respiratory tracts of specific individuals throughout the observation period, and never more than one was isolated from a particular individual, indicating that each individual acts as a host to a stable colony of bacteria specific to him. Such stability, even when illness arises among other individuals with different

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USSR

PETROSOV, V. V. and MORDVINOVA, N. B., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1973, pp 94-98

phagotypes, is probably due to intraspecies antagonism of the bacteria. Though foreign pathogenic bacteria were detected on the skin and in the respiratory tracts of 3 individuals, the initial phagotype subsequently regained dominance. Phagotypes were subjected to several tests to determine their pathogenic properties and virulence. In general they were found to be toxigenic (84.9% of 253 strains isolated) and virulent (95.1%). Considering the large number of individuals carrying pathogenic bacteria, the possibility of reinfection by foreign bacteria, and the toxigenicity and virulence of the strains, it is likely that the individual's immunobiological properties are more important to the pattern of Staphylococcal etiology than are the properties of the bacteria.

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172 013
UNCLASSIFIED
PROCESSING DATE--13NOV70
TITLE--REACTION OF O,S-DIALKYL CHLOROTHIOPHOSPHITES WITH ALPHA
CHLORONITROSALKANES -U-
AUTHOR--(03)-MARTYNOV, I.V., SHITOV, L.N., MURDVINTSEVA, YE.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 571-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--NITROSO COMPOUND, ALKANE, CHLORINATED ORGANIC COMPOUND, ALKYL
PHOSPHITE, PHOSPHORUS SULFIDE, ORGANIC SULFUR COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0933
STEP NO--UR/0079/70/040/003/0571/0573
CIRC ACCESSION NO--AP0124593
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124593

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PASSING 3 G CCL SUB2 FNO AT MINUS 30DEGREES INTO 4 G (ETO)(ETS)PCL IN CH SUB2 CL SUB2 RESULTED IN LOSS OF COLOR AND AFTER WARMING TO ROOM TEMP. GAVE 67PERCENT ETSP(O)CL(ON:CFCL), B SUB1 99-101DEGREES, D PRIME20 1.4790, N PRIME20 SUBD 1.4979; SIMILARLY WERE PREPD. 50-65PERCENT BUSP(O)CL(ON:CFCL), B SUB2 107-80DEGREES, 1.3692, 1.4925; ETSP(O)CL(ON:CFCL SUB2 CL), B SUBD.1 57-90DEGREES, 1.5131, 1.4582; MESP(O)CL(ON:CME SUB2), UNDISTILLABLE, 1.2950, 1.5079; ETSP(O)CL(ON:CME SUB2), UNDISTILLABLE, 1.2640, 1.5052; AND (ETS) SUB2 P(O)ON:CFCL, B SUB2 108DEGREES, 1.3070, 1.5218.

UNCLASSIFIED

MORDVINOV, Yu

*SO: Daily SWAP
Sent News Abstracts File
178 - 115m 23*

TITLE: NEEDED ON RADIATION DETECTORS
(SECTION)
PRIMARY SOURCE: PRAYDA VOZRODA, JANUARY 3, 1972, NO. 2 (17031), P. 3, COL. 2-3
ABSTRACT: ASSOCIATE OF THE LABORATORY OF MULTI-LAYERED STRUCTURES OF THE USSR ACADEMY OF SCIENCES AND STUDENT NUCLEAR RADIATION DETECTORS.
A PHOTOGRAPH SHOWS JUNIOR RESEARCH ASSOCIATE ALIUDAN NIGAMOV SETTING INSTRUMENTS IN THE LABORATORY.

TITLE: HYPERBOLIC DETECTORS
PRIMARY SOURCE: SOTSIALISTICHESKAYA INDUSTRIYA, JANUARY 4, 1973, NO. 3 (1072), P. 4, COL. 1-3
ABSTRACT: THE MOLDAVIAN SSR ACADEMY OF SCIENCES' INSTITUTE OF APPLIED PHYSICS HAS DEVELOPED AN ELECTROPHOSPHOR APPARATUS OF ELECTRODES TO THE SUBJECT. CALLED THE "LIDA-4", THE APPARATUS PRODUCES HYPOTHESIS FOR MEDICAL PURPOSES THROUGH THE EFFECT OF FOUR FACTORS - THERMALITY, SOUND, VIBRAL AND ULTRA HIGH-FREQUENCY - ON THE SUBJECT.

TITLE: HYPERBOLIC DETECTORS
PRIMARY SOURCE: SOTSIALISTICHESKAYA INDUSTRIYA, JANUARY 4, 1973, NO. 3 (1072), P. 4, COL. 1-3
ABSTRACT: THE MOLDAVIAN SSR ACADEMY OF SCIENCES' INSTITUTE OF APPLIED PHYSICS HAS DEVELOPED AN ELECTROPHOSPHOR APPARATUS OF ELECTRODES TO THE SUBJECT. CALLED THE "LIDA-4", THE APPARATUS PRODUCES HYPOTHESIS FOR MEDICAL PURPOSES THROUGH THE EFFECT OF FOUR FACTORS - THERMALITY, SOUND, VIBRAL AND ULTRA HIGH-FREQUENCY - ON THE SUBJECT.

TITLE: HYPERBOLIC DETECTORS
PRIMARY SOURCE: SOTSIALISTICHESKAYA INDUSTRIYA, JANUARY 4, 1973, NO. 3 (1072), P. 4, COL. 1-3
ABSTRACT: THE MOLDAVIAN SSR ACADEMY OF SCIENCES' INSTITUTE OF APPLIED PHYSICS HAS DEVELOPED AN ELECTROPHOSPHOR APPARATUS OF ELECTRODES TO THE SUBJECT. CALLED THE "LIDA-4", THE APPARATUS PRODUCES HYPOTHESIS FOR MEDICAL PURPOSES THROUGH THE EFFECT OF FOUR FACTORS - THERMALITY, SOUND, VIBRAL AND ULTRA HIGH-FREQUENCY - ON THE SUBJECT.

Bilay

TITLE: A. S. POVITSKIY (OBITUARY)
PRIMARY SOURCE: MOSKOVSKAYA PRAYDA, DEC. 23, 1972, NO. 298 (16092), P. 4, COL. 7
ABSTRACT: ALEXANDER S. POVITSKIY, A DEPUTY CHIEF DESIGNER OF AN AVIATION PLANT AND A (CONTINUED ON NEXT PAGE)

TITLE: STUDY OF HYDRODYNAMICS OF FISH
PRIMARY SOURCE: VOYNYI TRANSPORT, JANUARY 4, 1973, NO. 2, (6158), P. 4, COL. 1-5
ABSTRACT: THE HYDRODYNAMICS OF THE MOVEMENT OF FISH-SWIMMING FISH SUCH AS SHORTFISH AND DOGFISH IS DISCUSSED. THE URSALIAN SSR ACADEMY OF SCIENCES' INSTITUTE OF THE BIOLOGY OF THE SOUTHERN SEAS HAS CONDUCTED HYDRODYNAMIC RESEARCH ON THE MOVEMENT OF DOGFISH IN WATER FOR SEVERAL YEARS. SHORTFISH SERVES TO REDUCE THE "SPEED" OF RESISTANCE BY SETTING IN MOTION THE CURRENT WHICH WILL FLOW AROUND THE BODY OF THE FISH.

TITLE: STUDY OF HYDRODYNAMICS OF FISH
PRIMARY SOURCE: VOYNYI TRANSPORT, JANUARY 4, 1973, NO. 2, (6158), P. 4, COL. 1-5
ABSTRACT: THE HYDRODYNAMICS OF THE MOVEMENT OF FISH-SWIMMING FISH SUCH AS SHORTFISH AND DOGFISH IS DISCUSSED. THE URSALIAN SSR ACADEMY OF SCIENCES' INSTITUTE OF THE BIOLOGY OF THE SOUTHERN SEAS HAS CONDUCTED HYDRODYNAMIC RESEARCH ON THE MOVEMENT OF DOGFISH IN WATER FOR SEVERAL YEARS. SHORTFISH SERVES TO REDUCE THE "SPEED" OF RESISTANCE BY SETTING IN MOTION THE CURRENT WHICH WILL FLOW AROUND THE BODY OF THE FISH.

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ABSTRACT: THE HYDRODYNAMICS OF THE MOVEMENT OF FISH-SWIMMING FISH SUCH AS SHORTFISH AND DOGFISH IS DISCUSSED. THE URSALIAN SSR ACADEMY OF SCIENCES' INSTITUTE OF THE BIOLOGY OF THE SOUTHERN SEAS HAS CONDUCTED HYDRODYNAMIC RESEARCH ON THE MOVEMENT OF DOGFISH IN WATER FOR SEVERAL YEARS. SHORTFISH SERVES TO REDUCE THE "SPEED" OF RESISTANCE BY SETTING IN MOTION THE CURRENT WHICH WILL FLOW AROUND THE BODY OF THE FISH.

TITLE: STUDY OF HYDRODYNAMICS OF FISH
PRIMARY SOURCE: VOYNYI TRANSPORT, JANUARY 4, 1973, NO. 2, (6158), P. 4, COL. 1-5
ABSTRACT: THE HYDRODYNAMICS OF THE MOVEMENT OF FISH-SWIMMING FISH SUCH AS SHORTFISH AND DOGFISH IS DISCUSSED. THE URSALIAN SSR ACADEMY OF SCIENCES' INSTITUTE OF THE BIOLOGY OF THE SOUTHERN SEAS HAS CONDUCTED HYDRODYNAMIC RESEARCH ON THE MOVEMENT OF DOGFISH IN WATER FOR SEVERAL YEARS. SHORTFISH SERVES TO REDUCE THE "SPEED" OF RESISTANCE BY SETTING IN MOTION THE CURRENT WHICH WILL FLOW AROUND THE BODY OF THE FISH.

MORDVINOV, Yu. Ye.

Biology of the Southern Seas

UDC 599.745:591.17

JPRS 57743
12 December 1972

SCIENTIFIC HYDRODYNAMIC INDICES OF THE BODY SHAPE OF PINNIPEDS
Article by Yu. Ye. Mordvinov, Institute of the Biology of Southern Seas and Oceanography, Kiev, Odobolozhchinskij Zhurnal, Moscow, No 3, 1972, pp 101-105

Any body moving in water meets more or less resistance from the environment. The resistance of shape (drag or pressure resistance) and resistance caused by friction of the flow around the surface of a moving body -- the resistance of friction -- differ. During the process of evolution, pinnipeds underwent definite adaptations which tended to decrease resistance while swimming.

In this study, for characteristics of body form of some pinnipeds, we used indices proposed for fish: L_{fin}/L , cephalopods L_{fin}/L , and cetaceans L_{fin}/L , the greatest height (H) and body width index (Y). The greatest average body diameter (D) and the body form

formula: The greatest average body diameter was calculated by the

$$D = \frac{H+L}{2}$$

The index of body shape was determined by the equation:

$$Y = \frac{L_{\text{fin}}}{L} \cdot 100$$

where Y is the distance from the end of the nose to the greatest body height; L_{fin} is the length from the end of the nose to the end of the tail in projection.

For the most complete representation of hydrodynamic qualities of the body shape of pinnipeds, we found Y separately

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USSR

UDC 669.24:539.375

DEMCHENKO, L. V., KONONENKO, V. A., and MORDYUK, N. S., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Change of Substructure Disorientation in a Ni-Al Alloy During Ultrasonic Treatment and Creep"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 6, Jun 73, pp 1309-1312

Abstract: This work was conducted to study the changes in the substructure of Ni + 1.18 Al samples which occurred during ultrasonic exposure and creep. The change of substructure disorientation was determined by azimuthal crossion of reflections from one and the same grains at different stages of study. Microhardness was studied simultaneously. Part of the samples were investigated after deformation at room temperature for comparison of structural changes occurring due to ultrasonic treatment, which increase resistance to creep, with structural changes after mechanical-thermal treatment. Results of this work and analysis of literature data showed that dislocation sources, generating dislocation loops, are activated from ultrasonic exposure. The greater the amplitude of oscillations or treatment temperature the larger the number of dislocation sources activated and the higher the density of dislocation loops. On the other hand, stresses on the dislocations cause the dislocation loops

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USSR

DEMCHENKO, I. V., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 6, Jun 73, pp 1309-1312

to interact forming clouds and entanglements and low mobility dipoles which lead to irreversible processes. It was concluded that for high-temperature creep at the same applied load and same temperature, the sample creep rate under ultrasonic exposure is less than the creep rate of a simply annealed sample due to a much lower number of acting dislocation sources. 3 figures, 17 bibliographic references.

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Single Crystals

USSR

UDC 539.536+37.669.27

MORDYUK, N. S., Institute of Metal Physics, Academy of Sciences UkrSSR

"The Effect of Deformation on the Attenuation of Ultrasound in Tungsten Single Crystals"

Kiev, Metallofizika, No 31, 1970, pp 114-117

Translation: The effect of deformation on the attenuation of ultrasound in tungsten single crystals was studied. It is shown that the maximum attenuation connected with an increase in the density of and change in the length of the dislocation loop appears on the deformation dependence curve. As the degree of deformation increases, the microhardness of tungsten single crystals rises. It is also shown that a maximum shifting on the temperature axis during a change in the measurement frequency is observed on the temperature dependence attenuation curve. The activation energy of this relaxation maximum is equal to 0.3 electron volts. Bibliography: 14 entries, 3 illustrations

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USSR

UDC 539.534.4+669.27.276

MOEDYUK, N. S., Institute of Metal Physics, Academy of Sciences UkrSSR

"The Effect of Ultrasound on the Deformation Characteristics and Structure of Tungsten Single Crystals"

Kiev, Metallofizika, No 31, 1970, pp 107-114

Translation: Some properties of tungsten single crystals irradiated with powerful ultrasound were studied. It is shown that the irradiation of tungsten at room temperature with an application of static compressive forces leads to the splitting and destruction of single crystals. The effect of ultrasound at elevated temperatures (250°C) with a load of 1 kg/mm lowers the flow stress, and the single crystals are deformed.

The properties of crystals deformed in an ultrasonic field were studied by the etch pit method, through an investigation of the attenuation factor of elastic vibrations, by the x-ray method, as well as by electron microscopy. It is shown that in the tungsten single crystals treated in such a way the density of defects of the crystal structure increases and a relaxation maximum, which does not differ in its nature from such in tungsten deformed under ordinary conditions, appears on the temperature dependence curve of the attenuation factor. Bibliography: 25 entries, 5 illustrations.

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USSR

UDC 534.539.376

KOZYRSKIY, G. YA., KONONENKO, V. A., KUDKOVA, O. M., LEVITIN, V. V., MORDYUK, N. S., and ORZHEVSKAYA, L. K., Institute of Metal Physics, Academy of Sciences Ukrainian SSR, and Ukrainian Scientific Research Institute of Special Steel

"Durability and Substructure of a Heat-Resistant, Precipitation-Hardened Alloy Subjected to Ultrasonic Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 867-870

Abstract: The effect of ultrasonic irradiation on the structure and durability of KhN77TYuR industrial alloy was studied on samples quenched after eight hours at 1080°C, which were subjected to irradiation at 700°C with ultrasonic oscillation amplitude varied between 10 and 17 millicoulombs. After irradiation the samples were aged at 700°C for one or two hours and then creep tested at 700°C under a load of 46 kg/mm². It was determined that ultrasonic treatment of this alloy promotes a more uniform distribution of the carbide phase, increases ductility owing to removal of carbide from the grain boundaries, blocks dislocation sources, and intensifies aging in weak areas. The result is increased durability and decreased creep rate. 2 figures, 1 table, 4 bibliographic references.

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- 53 -

Physical Properties

USSR

UDC 539.534.4

MORDYUK, N. S., Institute of Metal Physics, Academy of Sciences USSR

"The Effect of Ultrasonic Vibrations on the Physical Properties of Metals and Alloys"

Kiev, Metallofizika, No 31, 1970, pp 83-107

Translation: The problems of the effect of ultrasonic vibrations on deformation characteristics, hardening, and creep properties, as well as the effect of ultrasound on phase transformations of metals and alloys are discussed. The problems of the effect of elastic vibrations on the fine structure of metals and alloys and their elastic and inelastic properties are discussed in detail. At the same time, work on the effect of the ordinary types of cyclic deformation on the fine structure is analysed, and it is shown that in many cases the results of these treatments are similar. On the basis of an analysis of a large number of studies it is concluded that for the time being there are no acceptable dislocation models for an explanation of the properties of metals acquired as a result of ultrasonic irradiation. To create such concepts, it is necessary to study all the details in the structural change that can be studied by electron microscopes, x-rays, and many other methods. Along with this it is pointed out that, when analyzing

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USSR

MORDYUK, M. S., Metallofizika, No 31, 1970, pp 83-107

the diversity of experimental facts, we must also take into consideration the nonlinear effects resulting from a cyclic change in the voltage applied to ultrasonic frequencies (effects of the second order). On the basis of the existing experimental research a certain model idea is proposed for an explanation of the results of ultrasonic irradiation, which should be characterized by an interaction between the dislocation loops in the same or adjacent slip planes. This work also indicates which of the phenomena that have already been studied can find practical application. Bibliography: 124 entries, 19 illustrations.

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1/2 036 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INCREASE IN HIGH TEMPERATURE CREEP RESISTANCE USING ULTRASONIC
IRRADIATION -U-
AUTHOR--(04)-DEYCHENKO, L.V., KOZYRSKIY, G.YA., KONDRYENKO, V.A., MORDYUK,
N.S.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL METALLOVED. 1970, 29(3), 657-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--CREEP RESISTANCE, METAL CREEP, NICKEL ALLOY, ALUMINUM
CONTAINING ALLOY, GRAIN SIZE, THERMO MECHANICAL TREATMENT, DEFORMATION
RATE, ULTRASONIC IRRADIATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0340 STEP NO--UR/0126/70/029/003/0657/0659
CIRC ACCESSION NO--AP0126096
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126096

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE STUDY WAS CARRIED OUT WITH THE ALLOY NI, AL 1.18 PERCENT HAVING GRAIN SIZE 0.4-1.5 MM, WHICH WAS IRRADIATED WITH AN INTENSITY OF 50-90 W-CM PRIME2, USING THE METHOD DESCRIBED BY G. YA. K. AND V. A. K. (1966). THE RATE OF CREEP WAS DETD. AT 100-300 HR. SPECIMENS SUBJECTED TO THERMOMECH. TREATMENT AT 800 DEGREES WERE USED AS CONTROLS, AND THESE SHOWED SEVERAL TIMES HIGHER DEFORMATION RATES THAN THOSE IRRADIATED WITH ULTRASOUND. THE INTENSITY OF THE ULTRASONIC IRRADN. HAD PRACTICALLY NO EFFECT ON THE DEGREE OF CREEP RATE DECREASE OF IRRADIATED SPECIMENS; HOWEVER, THE DURATION OF IRRADN. HAD AN EFFECT, AT 5-7 MIN THE STRENGTHENING OF THE ALLOY REACHED A MAX. THE GBSD. EFFECTS ARE EXPLAINED BY THE FORMATION OF A DIFFERENT SUBSTRUCTURE IN IRRADIATED SPECIMENS THAN IN DEFORMED AND ANNEALED SPECIMENS. FACILITY: INST. METALLOFIZ., KIEV, USSR.

UNCLASSIFIED

1/2 010
UNCLASSIFIED
TITLE--PURIFIED WASTE WATER IN SULFATE PULP PRODUCTION -U-
PROCESSING DATE--04DEC70
AUTHOR--(03)--MOREKHIN, M.G., MILOVZOROV, V.P., SHEVCHENKO, T.V.
COUNTRY OF INFO--USSR
SOURCE--BUM. PROM. 1970, (5), 14-15
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--PAPER INDUSTRY, INDUSTRIAL WASTE, WATER POLLUTION, CHEMICAL
PATENT, WATER RECYCLING EQUIPMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/0992
STEP NO--UR/0239/70/000/005/0014/0015
CIRC ACCESSION NO--AP0134705
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134705

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF PURIFICATION OF KRAFT MILL EFFLUENTS DESCRIBED IN U.S.S.R. 245,672, WHICH REMOVES 95-100PERCENT ORG. IMPURITIES AND MAKES POSSIBLE THE RECYCLING OF THE PURIFIED WATER, WAS TESTED IN A TM 68 MACHINE OF CAPACITY 10 M PRIME3-DAY TO DET. THE EFFECT OF THE SALT COMPN. OF THE WATER ON ITS QUALITY FOR USE IN KRAFT PULP MANUF., AND THE LENGTH OF TIME THIS WATER COULD BE USED IN A CLOSED CYCLE BEFORE BEING DEASHED. A PART OF THE SALTS INTRODUCED INTO THE PROCESS WATER DURING PULPING IS REMOVED IN THE PURIFICATION PROCESS, BUT NEW MINERAL IMPURITIES ARE INTRODUCED DURING PURIFICATION, SO THAT THE MINERAL COMPN. IS ALTERED. ACCORDING TO THE PROPOSED METHOD, DEASHING IS TO BE DONE BY DISTN. AFTER 50 CYCLES, I.E. THE CYCLE IS CLOSED BY DISTG. 2PERCENT OF THE INITIAL PROCESS WATER. THE MODEL EXPTS. WERE CONDUCTED FOR 1000 HR, USING EFFLUENTS FROM THE KHERSON PULP MILL, AND THE PURIFIED WATER WAS REUSED 25 AND 50 TIMES IN THE MANUF. OF KRAFT PULP FROM ASPENWOOD AND SPRUCEWOOD. THE PULPS OBTAINED DID NOT DIFFER FROM THOSE MANUF. WITH FRESH WATER. MULTIPLE RECYCLING INCREASED BY 15-17PERCENT THE AMT. OF CHEMS. USED FOR PREPN. OF WHITE LIQUOR AND AN INCREASED FOAMING TENDENCY WAS OBSERVED. THE PURIFIED WATER WAS USED IN ALL STAGES OF THE PULP MANUFG. PROCESS (PREPN. OF WHITE LIQUOR, PULP WASHING, BEATING, AND PREPN. OF HANDSHEETS) AND THERE WERE NO EFFLUENTS TO BE DISCHARGED. INDUSTRIAL TESTS ARE NECESSARY TO DET. THE ECONOMIC ASPECTS OF THE NEW PURIFICATION PROCESS.

FACILITY: KIEV. TORG.-EKON. INST., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 591.484.6

MORENKOV, E. D., and KOTLYARSKIY, A. M., Chair of the Physiology of Higher Nervous Activity, Moscow State University

"Some Data on Eye Movements in Man and Animals and Methods for Recording Them"

Moscow, Vestnik Moskovskogo Universiteta, Seriya 6, Biologiya, Pochvovedeniye, No 6, Nov/Dec 71, pp 35-41

Abstract: In order to investigate the connection between motor and sensory links in the process of visual analysis, especially in the visual centers of the brain, the eye movements of healthy persons were recorded upon presentation of moving and motionless stimuli. For comparison, the eye movements of fish, amphibians, birds, and mammals were also recorded, using not both human and animal subjects a special recording device developed by the authors. A description of the device is given and parameters obtained for the main types of macro- and micromovements of the eyes of human subjects are given. Results are compared with those cited in the literature, and the role which the various types of eye movements play in the perception of stimuli are discussed.

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USSR

UDC 617-001.17-06:616.45-001.1/.3-07:616.379-008.8-072.7

MORENKOVA, S. A., Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences, Moscow

"Biosynthesis of Insulin in Burn-Induced Stress"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 7, 1971, pp 42-45

Abstract: Immediately after rats were burned, they were injected with a labeled amino acid, C¹⁴-glycine or C¹⁴-tyrosine. The level of 11-hydroxy-corticosteroids in the animals' blood increased sharply shortly after the burn was inflicted, while incorporation of the labeled amino acids into insulin decreased significantly. The change in insulin level was caused by inhibition of synthesis of the B chain; the intensity of synthesis of the A chain was the same as in controls. Study of the incorporation of the labeled amino acids into the total proteins of the endocrine glands showed that the specific activity of the proteins was much lower in the pancreas, thymus, and tests of the stressed rats than in the control, but it was about the same in the adrenals and thyroid of both the experimental and intact animals.

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1/2 030
UNCLASSIFIED
TITLE--INSULIN RESYNTHESIS IN THE LIVER OF INTACT ANIMALS, IN THOSE WITH
RESECTED PANCREAS AND ADRENALECTOMIZED ANIMALS -U-
AUTHOR--MORENKOVA, S.A. M
COUNTRY OF INFO--USSR
SOURCE--BYULLETIN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 3, PP 39-42
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INSULIN, BIOSYNTHESIS, LIVER, PANCREAS, ADRENAL GLAND,
SURGERY, RAT, TYROSINE, CYSTINE, GLYCINE, TAGGED ATOM, PEPTIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1982/0852
STEP NO--UR/0219/70/069/003/0039/0042
CIRC ACCESSION NO--AP0052286
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CSC ACCESSION NO--AP0052286

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. UNDER INVESTIGATION WERE THE POSSIBLE ROUTES OF INSULIN RESYNTHESIS IN THE LIVER OF INTACT RATS, IN ADRENALECTOMIZED ANIMALS AND IN THOSE WITH RESECTED TAIL REGION OF THE PANCREAS. THE ANIMALS WERE GIVEN LABELLED AMINO ACIDS (C PRIME 14 TYROSINE, S PRIME 35 CYSTEINE, C PRIME 14 GLYCINE) PARENTERALLY. THE RATIO OF THE VALUES BETWEEN SPECIFIC ACTIVITIES OF A AND B CHAINS OF INSULIN IN THE LIVER OF INTACT ANIMALS VARIES SIGNIFICANTLY AND DIFFERENTLY FROM THE CORRESPONDING INDICES OF THE PANCREAS IN INCLUSION OF EACH UTILIZED AMINO ACID. WITH ALTERATION OF THE FUNCTIONAL STATE OF THE ANIMAL THESE RATIOS EVEN IN INCLUSION OF ONE AND THE SAME AMINO ACID ALSO SHARPLY DIFFER. THUS, IT COULD BE SUPPOSED THAT A AND B CHAINS OF INSULIN FORMING IN THE PANCREAS ARE PRECURSORS OF INSULIN IN THE LIVER, UNDERGO THEREIN SIGNIFICANT ALTERATIONS AND SEPARATE STAGES OF FORMATION OF THEIR PEPTIDE AREAS ALSO IS EFFECTED IN THIS TISSUE. FUNCTIONAL ALTERATION OF THE INSULAR APPARATUS IS ATTENDED WITH SHIFTS IN THE METABOLISM OF POLYPEPTIDE CHAINS OF INSULIN IN THE LIVER.

UNCLASSIFIED

USSR

UDC: 621.398.3

BROMBERG, E. M., KULIKOVSKIY, K. L., and MORIKV, B. V.
"Self-Correcting Analog-Digital Converter of the Low-Voltage,
Pulse-Time Type"

Leningrad, Priborostroyeniye, No 5, 1972, pp 13-17

Abstract: The device described in this article, written by members of the V. V. Kuybyshev Polytechnical Institute, is an analog-digital converter designed to overcome the deficiencies of most instruments of that type, low sensitivity and relatively poor accuracy. The device employs a new method of self-correction through which the errors in the output code, the coefficient connecting the input voltage with the output code and depending on the amplifier gain as well as the rapidity of change in the balancing voltage, and finally the changes in the scale factor resulting from nonlinearity of the amplifier transfer function and the deviations of the balancing voltage from linearity, cannot affect the accuracy of the converter's operation. This new method differs from the conventional one in that it requires only two standards for the transformation of even a substantially non-linear function. A block diagram of the converter is given together with a theoretical explanation. Experiments with it showed

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UDC: 621.398.3

BROMBERG, E. M., et al, Priborostroyeniye, No 5, 1972, pp 13-17
that it has an error of 0.05%, with a measurement limit of 50 mV
and within the temperature range of -30 to +50° C.

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Acc. Nr:

AP0053896

Abstracting Service:
CHEMICAL ABST. 6-7C

Ref. Code:

4R0076

✓ 114080t Desulfurization of an iron-ore concentrate at a concentrating mill in a reducing gas medium. Zulfira, O. V.; Nemkin, V. M.; Morev, I. I. (Magnitogorsk, Gorn. Met. Inst., Magnitogorsk, USSR). Zh. Fiz. Khim. 1970, 44(1), 210-12 (Russ). Thermodynamic anal. was used to evaluate the desulfurization capacities of H, CO, and gas mixts. (32% CO + 68% H and 34% CO + 28% H + 38% CO₂) during redn. of the concs. The highest degree of desulfurization is achieved with pure H (95%), and the lowest with CO (33%). The degree of desulfurization with use of gas mixts, has an intermediate value, but increases with increasing H content. M. Braunovic - 477C

REEL/FRAME
19830973

UNCLASSIFIED
THERMODYNAMIC ANALYSIS OF THE REDUCTION OF
CONCENTRATES AT IS GREATER THAN 1400 DEGREES -U-
AUTHOR--(02)--NEMKIN, V.M., MOREV, I.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1) 208-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--IRON ORE, THERMODYNAMIC ANALYSIS, IRON OXIDE, METAL REDUCTION,
GAS FLOW
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1983/0941
CIRC ACCESSION NO--AP0053865
STEP NO--UR/0076/70/044/001/0208/0209
UNCLASSIFIED

CIRC ACCESSION NO--AP0053865
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT. THERMODYNAMIC CALCN. OF THE
STABILITY OF THE FE OXIDES IN POLYDISPERSE FE ORE CONCS. IS GIVEN.
OWING TO THE REDN. GAS CAPACITIES, IT CAN BE USED IN REDN. OF THE FE
OXIDES OF THE POLYDISPERSE CONCS. WITH A FINAL OUTFLOW OF GAS THAT IS
FREE FROM EXCESS REDN. COMPONENTS AND CONSISTENT WITH THE EQUIL. FOR THE
PURE OXIDES.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--STRENGTH AND MINERALOGICAL COMPOSITION OF PELLETS FROM
SOKOLOVO-SARBAI BENEFICIATING COMBINE IN RELATION TO FIRING CONDITIONS
AUTHOR--(04)-CHERNYSHEV, A.M., MALYSHEVA, T.YA., MOREYEVA, G.P., ZHURAVLEV,
F.M.
COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(4), 293-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--PELLETIZATION, IRON ORE, SLAG, CERAMIC BINDER, TEMPERATURE
DEPENDENCE, MECHANICAL STRENGTH, CALCIUM OXIDE, MAGNESIUM OXIDE,
ALUMINA, SILICA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1275

STEP NO--UR/0133/70/030/004/0293/0298

CIRC ACCESSION NO--AP0136681

UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0136681

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF TIME AND TEMP. AT DIFFERENT STAGES OF FIRING FLUXED FE ORE PALLETS WAS INVESTIGATED MINERALOGICALLY AND BY CRUSHING STRENGTH DETN. AT HIGH TEMPS. COMPLEX SILICOFERRITES CONTG. LESS THAN OR EQUAL TO 8PERCENT (CAO PLUS MGO PLUS AL SUB2 O SUB3 PLUS SIO SUB2) HAVING A MAX. CRIT. STRENGTH TEMP. SERVE HERE AS A BOND WHICH HAS A LESSER REDUCIBILITY THAN HEMATITE AND MAGNETITE AND REMAINS SUCH UP TO THE REDN. OF FE TO METAL. A MAX. RANGE OF 650-700DEGREES OF CRIT. STRENGTH WAS RECORDED WITH A STRUCTURE OF INTERMESHED HEMATITE AND FERRITES. ADDN OF DOLOMITE TO THE CHARGE CAN BE RECOMMENDED IN THIS LIGHT.

UNCLASSIFIED

USSR

UDC: 681.317.353

MORGACHEV, A. V., KURCHER, V. A.

"A Pulse Duration Modulator"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 12, Apr 71, Author's Certificate No 299983, Division H, filed 6 Oct 69,
published 26 Mar 71, pp 216-217

Translation: This Author's Certificate introduces a pulse duration modulator which contains an auxiliary back-to-back sawtooth signal source, a null indicator and a switch all connected in series. As a distinguishing feature of the patent, conversion linearity is improved and the input signal is eliminated in the case of zero input by adding another series circuit made up of a null indicator and a switch, and also two adders with inverters at one of the inputs. The input of the additional null indicator is connected to the output of the auxiliary back-to-back sawtooth signal source, and the inputs of the inverters are connected to the outputs of the null indicators. The second inputs of the adders are cross-connected to the outputs of the switches.

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USSR

UDC: 621.391.519.2

KISELEV, L. K., MORCACHEV, Ye. T.

"Comparative Effectiveness of Two Methods of Monitoring Pulse Interference in Audio Frequency Channels"

Sb. nauchn. tr. TsNII svyazi (Collected Scientific Works of the Central Scientific Research Institute of Communications), 1970, vyp. 1, pp 60-70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A54)

Translation: The authors discuss two methods of monitoring pulse interference in transmission of discrete information: monitoring with respect to the envelope, and monitoring with the aid of a filter whose passband is selected on the edge of the passband for the channel. The effectiveness of monitoring pulse interference with respect to two parameters is evaluated: with respect to the coefficient of undetected errors, and with respect to the coefficient of false erasures. The results of linear tests of instruments which realize these methods are given. Resumé.

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USSR

Instruments and Measurements

UDC 621.317.78:621.385.6

ANTROPOV, B. A., ANTROPOVA, L. KH., MORGACHEVA, G. A., KOTOSONOV, N. V.,
SHUVAYEV, A. G., Voronezh State University, Gomel' State University

"Problem of Utilizing the Reluctance Effect to Measure Microwave Transmitting Power"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 9,
1972, pp 1393-1397

Abstract: The possibility of using reluctance sensors to measure the microwave transmitting power is discussed, and experimental results are presented for the voltage caused by the reluctance effect as a function of the transmitting power on a frequency of 9,370 megahertz. The reluctance sensor, just as the Hall sensor is an indicator of the microwave power flux density and is a transmitting power meter. There is a good linear relation between the output voltage taken from the sensor and the magnitude of the transmitting power and the readings from a specimen depend on its position relative to the open end of the wave guide which defines the point nature of the specimen, that is characterizes the dependence of its readings on the microwave power distribution and the low distortion introduced by the specimen into the microwave power distribution. Both the theoretical and experimental studies indicate the possibility of creating wattmeters based on reluctance sensors with the

USSR

ANTROPOV, B. A., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 9, 1972, pp 1393-1397

following advantages over the power meters used at the present time: 1) low inertia connected with the fact that the relaxation time of the current carriers is $\sim 10^{-12}$ seconds as a result of which it is possible to use these devices to measure the pulse power; 2) low dissipated power in the sensor operating in the transmitting power mode which makes it possible to measure high power levels; 3) simplicity of the measuring circuit.

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USSR

UDC: 621.315.592

DRABKIN, I. A., MORGOVSKIY, L. Ya., NEL'SON, I. V., and RAVICH, Yu. I., Semiconductor Institute, Leningrad

"Characteristic Light Absorption in Nonparabolic Regions of PbTe and Solid PbTe-SnTe Solutions"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1323-1326

Abstract: A comparison is made between the experimental data for the absorption coefficient of PbTe and compounds of similar zonal structure on the one hand, and the theoretical expressions derived on the basis of the two-zone model on the other. Computation of the characteristic absorption coefficient is made in the framework of the two-zone model by computing the matrix elements of the dipole junctions through the use of wave functions found by the Kp method. Such calculations show that the absorption coefficient in the nonparabolic zone increases because of the faster growth of the density of the compounds as a function of the energy. Experiments to determine the absorption of epitaxial films of PbTe, $Pb_{0.9}Sn_{0.1}Te$ and $Pb_{0.8}Sn_{0.2}Te$ are described. The results of these

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USSR

DRABKIN, I. A., et al, Fizika i tekhnika poluprovodnikov. No 7, 1972, pp 1323-1326

experiments are given in the form of curves showing the absorption coefficient and the coefficient squared as functions of the light energy. For the sake of comparison, the theoretical and experimental results are plotted on the same axes.

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MORGULIS, L. A.

AA0039845

UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent, -

3/70

237722 BIOCHEMICAL TESTING OF WASTE WATER is more reliable and more accurate. Vessel 1 is connected to the compensating bottles 2 and 3 through an electrolyser 4 and a pressure regulator 5. The regulator is connected with a level indicator 6, an amplifier 7, a relay 8 and a recorder 9. 1 litre of waste water (sample) with active sludge is placed in the vessel. A container 10 with 30% solution of KOH is placed to absorb carbon dioxide. Oxidising of organic matters accompanies the demand for diluted oxygen and subsequent diffusion of it from gas 11 to a liquid. The pressure of gas increases due to the fact that

AUTHORS: Arendt, G. A.; Veprintsev, V. I.; Kalyagin, A. M.;
Krikun, V. Ya.; Livshits, L. S.; Marchenko, I. A.;
Morgulis, L. A. and Sokolov, G. I.

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AA0039845

electrolyser & produces oxygen by the electrolysis of an anode A. When it is equal to the pressure in the bottles 2 and 3, the electrolyser is automatically cut-off. The current to the electrolyser is regulated by a resistance R and the duration of the cycle is controlled by a timer 12. Hydrogen from cathode R is absorbed in 13. Mixing of sample is done magnetically 14 and the complete assembly is submerged in a thermostatically controlled water bath 15. 17.4.67. as 1149716/23-26. A.A KUZMIN et alia Water Supply Canalisation Hydrotechnical Plate and Hydrogeological Eng. Res. Inst. (7.7 69.) Bul.8/12.2.69. Class 85b. Int.Cl. CO2b.

Spetsial'noye Konstruktorskoye Byuro "Gaztroymashina"

19741230

AA0040774

MORGULLIS MI

UR D482

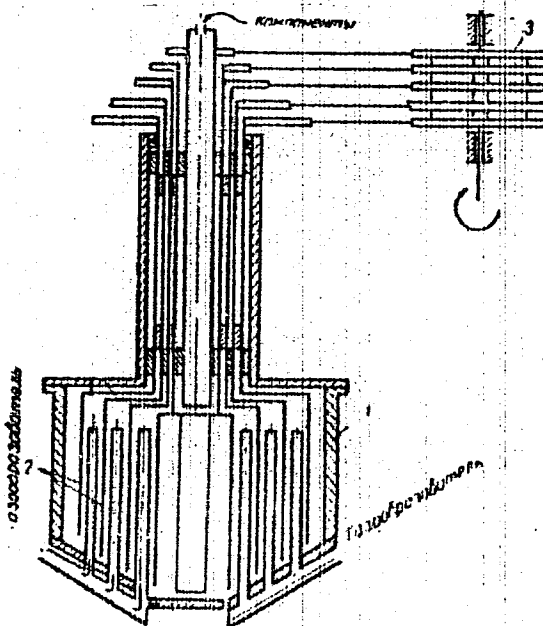
Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

242369 POLYSTYRENE BEADS PRODUCTION, in a mixer the schematic arrangement of which is shown in the diagram; the cylindrical container (1) is equipped with concentrically distributed blades (2), with the drive mechanism (3), which ensures that the differently located blades are all driven at the same linear rate of motion by the system of belt-and-pulley arrangements. There are also perforated diffusers located between the blades, through which the gas required to assist in the production of the necessary composition for the preparation of the final product is admitted. The mixer ensures that high intensity and uniformity of mixing is obtained across the entire cross-section of the mixing chamber, thus increasing productivity and the quality of the material produced.

11.8.65. as 1022289/23-5, AGADZHDANOV, G.S. and others. (2.9.69) Bul. 15/25.4.69. Class 39a⁵ Int Cl. B 29g. |

19750472

AA0040774



13750473

AA0040774

AUTHORS: Agadzhanov, G. S.; Morgulis, M. L.; and Gersbikovich, B. M.

19750474

USSR

UDC: None

MORGULIS, N. D. and PRZHONSKIY, A. M.

"Effect of Resonance Radiation on the Characteristics and Parameters of a Cesium Discharge Plasma"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 2, 1972, pp 344-348

Abstract: This experimental paper is devoted to the clarification of the role of resonance excitation, for the reaction $6S_{1/2} \rightarrow 6P_{1/2,3/2}$, during cesium atom ionization in a discharge plasma. The authors used the method of optical pumping, described in their earlier papers (Zhurnal eksperimental'noy i teoreticheskoy fiziki, 58, 1970, p 1873; Zhurnal tekhnicheskoy fiziki, 41, No 5, 1971) on bias lighting of the object for investigating the resonance radiation of cesium. As in those papers, they also used the two-sectional instrument consisting of an autonomous, controlled source of cesium resonance radiation and a constant, low-voltage arc discharge, contained in the first section, with an incandescent cathode in cesium vapor. They also used a transit-time mass analyzer, finding that the increase in ionization in the radiation is connected with the generation of atomic ions in the plasma.

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Magnetohydrodynamics

USSR

UDC 533.915+535.343.1

MORGULIS, N. D., POLUSHKIN, I. N., KRAVCHENKO, A. I.

"Spectral Emission and Population of Cesium Levels in a Short Plasma Diode. I"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 2, February 1971, pp 335-338

Abstract: In this report some preliminary data are presented from a spectral study of nonequilibrium processes in a short cesium plasma diode. The emission of some spectral lines of the diffuse and main cesium series in a short (5 mm) plasma discharge diode with an incandescent cathode was investigated. Measurements were taken at various (low) cesium vapor pressures, different current densities and voltages on the diode, and at different distances from the cathode x . The populations of the various D-, 7P-, and 8P-levels were determined on the basis of the data obtained, taking into account reabsorption of emission. Simultaneously, the characteristics of the investigated plasma were also determined for various values of x using a sliding cylindrical probe. The experimental results demonstrated that the plasma obtained under such conditions can be so much in equilibrium that noticeable inversion of the populations of some of the D- levels with respect to the indicated P-levels is impossible. For example, in the experiments for the $9D_{5/2} \rightarrow 8P_{1/2}$ transition, it reaches $\sim 10^8 \text{ cm}^{-3}$.

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USSR

MORGULIS, N. D., et al., Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 2, February 1971, pp 335-338

This inversion depends essentially on the experimental conditions and on the value of x . On the basis of this and previous experiments it is possible to draw the conclusion that the occurrence of this inversion is connected with the effect of superhigh-frequency plasma oscillations existing in the diode under these conditions. Finally, the generation conditions for stimulated radiation are calculated as an example. All of these conditions are favorable, although it is possible to select better ones than used in the given example.

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USSR

UIE 621.762.002.5(088.8)

MEL'NIKOV, V. N., TRET'YAKOV, V. I., YEMEL'YANOVA, M. D., MUKHAMEDZHANOV, A. K., KAMENSKAYA, D. S., MORGUN, G. N., CHAVRIKOV, M. G., and GRACHEV, Yu. S.

"Rotating Electrical Furnace for Production of Metallic Powders"

USSR Author's Certificate No 267823, Filed 23/06/66, Published 23/07/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G477 P)

Translation: The furnace includes a hopper, loading and unloading chambers with worms, a body, rotating tube, and a device for removal of the layer of powder accumulating on the surface of the tube. In order to increase productivity of the process and improve working conditions, the device for removal of the powder layer from the surface of the tube is firmly fastened in the working space of the tube so that its leading edge is located parallel to its axis and its working face is at an angle to the radius. The device is attached to parts of the loading and unloading chambers.

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USSR

UDC 669.046.5

IODKO, E. A., ~~MORGUNOV, A. V.~~, and YAVOYSKIY, V. I.

"Concerning the Problem of Nonmetallic Impurities Distribution in Killed Steel Ingots"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS). (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 48-51

Translation of Abstract: Data are presented on a study of primary nonmetallic impurities distribution in ingots. The study was made on a physical model at various ratios of geometrical dimensions. Two figures, two refs.

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1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--AUTOCLAVE FOR OPERATING WITH HIGH PURITY GASES -U-
AUTHOR-(04)-NIKIFOROV, V.P., MORGUNOV, A.V., SPITSYN, B.V., FEDOSEYEV,
D.V.
COUNTRY OF INFO--USSR M
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 535-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--AUTOCLAVE, VACUUM TECHNOLOGY, CHEMICAL PURITY, GAS PRESSURE

CONTROL MARKING--NO RESTRICTIONS'

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0440

STEP NO--UR/0076/70/044/002/0535/0537

CIRC ACCESSION NO--AP0121114

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121114

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN AUTOCLAVE WITH A 100 ATM
PRESSURE RANGE AND VACUUM UP TO 1.10 PRIME NEGATIVE4 TORR IS DESCRIBED.
A DIAGRAM IS GIVEN ON THE DEVICES USED FOR FEEDING GASES.
FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 534.0

VOLOSOV, V. M., and MORGUNOV, B. I., Chair of Mathematics

"On the Use of an Averaging Method for Calculating the Oscillations of Non-linear Systems With Allowance for Energy Dispersion"

Moscow, Vestnik Moskovskogo Universiteta, Seriya III -- Fizika, Astronomiya, Vol 13, No 2, Mar-Apr 72, pp 238-240

Abstract: The article describes an averaging method which makes it possible to calculate the oscillatory modes of essentially nonlinear systems with one degree of freedom with allowance for energy loss in the material, assuming that the area of the hysteresis loop is a small quantity proportional to the small parameter $0 < \varepsilon \ll 1$.

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USSR

UDC 621.224-253.5.001.24

VIKTOROV, G. V. and MORGUNOV, G. M.

"Application of the Solution of an Inverse Problem of Cascade Profiles to the Designing of Blade Systems of Diagonal Turbines"

Tr. Mosk. Energ. In-ta (Works of the Moscow Power Engineering Institute), No 132, 1972, pp 103-117 (from Referativnyy Zhurnal--Turbostroyeniye, No 1, 1973, Abstract No 1.49.149)

Translation: For the first time in the practice of the calculation of hydraulic turbine impellers, use was made of a general method of solving the inverse problem for a cascade in a layer with an arbitrarily changing thickness. Upon testing, impellers D60-4020 and D45-4201 manifested high energetic and cavitation qualities. The cavitation qualities of model turbines, obtained on the basis of the calculation and on the basis of tests, were similar. The method may be recommended for extensive use in the calculation of hydraulic machines. There thus becomes available the possibility, for hydraulic machines with a flow-through part of arbitrary form, of substantially decreasing the time periods required for developing new blade systems, considerably decreasing the maximum number of experimental specimens. 5 figures. 3 references.

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USSR

UDC 532.5:621.22

MORGUNOV, G. M.

"One Method for Calculating the Flow Over Three-Dimensional Blade Systems of Hydraulic Machines"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, No. 132, pp 91-102 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B739)

Translation: The steady-state three-dimensional nonseparating flow of an ideal incompressible fluid in a blade rim is discussed. The known families of surface rotations $q_1 = \text{const}$, meridional planes $q_2 = \text{const}$, and the family orthogonal to them $q_3 = \text{const}$ are derived. The flow on surfaces $q_1 = \text{const}$ and $q_3 = \text{const}$ is mapped conformally on a plane. The complex conjugate velocity of the flow on each of the surfaces of the three families are expressed by the Cauchy formula for analytical functions. Boundary conditions are the following: ahead of and behind the rim the flow is axisymmetric, the boundaries of the channel are current surfaces, and the modulus of the velocity vector at the input edge is equal to zero. It is proposed that the system of equations be solved for three families of derived surfaces, such that the vector field of the vortex is calculated in terms of a Helmholtz equation. Sample calculations are not given. 6 references. G. L. Podvidz.

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Epidemiology

USSR

UDC 616.981.55-022.34

MORGUNOV, I. N., SOKOLOVSKAYA, G. G., and KOLESNIKOV, Kiev Medical Institute
Izani A. A. Bogomolets

"Some Ways in Which Pathogenic Anaerobes Spread"

Moscow, Gigiyena i Sanitariya, No 4, 1971, pp 25-28

Abstract: The epidemiology of botulism and tetanus is largely influenced by the complex interaction of soil and other natural and social factors. A major source of infection of the soil is the excretions of cattle, poultry, and rodents in whose stomach contents *Clostridium tetani* and *Clostridium botulinum* were found in 62 to 64% and 21 to 34% of 1400 samples analyzed. Tetanus morbidity is very high in regions with a predominance of chernozem, meadow, and alluvial soils but low in erosion regions. Alluvial soils are infected with a great variety of microorganisms, including spore-forming anaerobes. Anaerobes are readily transported with soil minerals in the process of denudation and accumulation which is shaping the present-day relief of the earth's crust. Still another important route of spread of the causative agents of tetanus and botulism is the dust storm, which occurs with fair frequency in the Ukraine. Analysis of dust carefully taken from the tops of snow mounds the day following a dust storm revealed the presence of both microorganisms in almost 20% of the samples.

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USSR

VERSHIGORA, A. Ye., DYACHENKO, S. S., LISUNKINA, I. K., MORGUNOV, I. N.,
NOGACHEVSKIY, I. I., TEREKHOV, S. N., CHERNUSHENKO, Ye. F., and YAGUD, S. L.,
Editors, Ministry of Health, Ukrainian SSR

Immunologiya. Respublikanskiy mezhvedomstvennyy sbornik (Immunology.
Republic Interdepartmental Collection), No 5, "Zdorov'ya," Kiev, 1972

Translation: Annotation: Articles included in the collection deal with the most pressing problems of theoretical and practical immunology, viz., mechanism of the formation of antibodies and immunological reactivity, allergy and clinical and experimental immunopathology, specific prophylaxis, and reactogenicity of vaccines and postvaccinal complications. Works aimed at devising methods of immunological investigations help to solve problems of modern immunology.

The previous four issues of this collection were published under the title of "Voprosy Immunologii" (Problems of Immunology).

The collection is of interest to scientific workers, practitioners of various specialties, and to senior students of medical institutes.

191 pages. 52 Russian articles with Russian abstracts.
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USSR

VERSHIGORA, A. Ye., et al., Immunologiya. Respublikanskiy mezhvedomstvennyy sbornik (Immunology. Republic Interdepartmental Collection), No 5, "Zdorov'ya," Kiev, 1972

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